

REMARKS

Claims 1-37 were pending in the application with Claims 1-26 being withdrawn as a result of an earlier restriction requirement. Claim 27 has been amended, leaving Claims 27-37 for consideration in the present amendment. Support for the amendment to Claim 27 can be found in original Figure 2 and the related discussion in the specification.

It is believed that the amendments made herein may be properly entered at this time, i.e., after final rejection, because the amendments do not require a new search or raise new issues and reduce issues for appeal. No new matter has been introduced by these amendments.

Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

35 U.S.C. § 103(a) Rejection

Claims 27-37 have been rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over GB Patent No. 2,263,108 to Imrie et al. (hereinafter “Imrie”) in view of U.S. Patent No. 6,203,688 to Lipsztajn et al (hereinafter “Lipsztajn”) with reference to U.S. Patent No. 5,106,465 to Kaczur et al. (hereinafter “Kaczur”) and U.S. Patent No. 6,413,416 to Buchan (hereinafter “Buchan”). Applicants respectfully traverse these rejections.

Independent claim 27, as amended, is directed to a system for producing chlorine dioxide comprising an electrochemical acidification cell comprising an anode compartment comprising an anode, a cathode compartment comprising a cathode, and a central compartment positioned between the anode and cathode compartments, wherein the central compartment comprises a cation exchange material and an outlet in fluid communication with a conduit; an alkali metal chlorite solution in fluid communication with the central compartment of the acidification cell; a water source in fluid communication with the anode and cathode compartments, wherein operation of the electrochemical acidification cell

produces a first feedstream comprising chlorous acid from the conduit; and a vessel in fluid communication with the conduit and downstream from the electrochemical acidification cell, wherein the vessel is partially filled with water and comprises an outlet in fluid communication with the water; a cartridge having a lower portion with openings in fluid communication with the water; and a solid phase chlorine-containing material disposed within the cartridge, wherein a portion of the solid phase chlorine-containing material is submerged in the water within the cartridge to produce a second feedstream comprising a dissolved chlorine containing material from the vessel outlet, wherein the system is configured to combine the first and second feedstreams to produce the chlorine dioxide.

The Office relies on Imrie as the primary reference to generally teach an apparatus for generating chlorine dioxide by passing a metal chlorite solution through the apparatus containing a solid phase chlorine containing material. However, in arriving at this particular apparatus, Imrie comments that “[c]onventional methods of generating solution so chlorine dioxide involve adding chlorine or acid to chlorite or chlorate solutions. ... The conventional methods involve the handling of two or more solutions which need to be metered in to the generator. Some of the solutions, such as sodium hypochlorite are in themselves quite hazardous. Also, it is hazardous to handle chlorine gas.” (see Imrie, page 1, fourth and fifth paragraphs, emphasis added) Based on the foregoing, it appears Imrie is teaching away from apparatuses that use conventional methods such as those that are configured to add acid to chlorite solutions. Applicants maintain that the Examiner has used an improper standard in arriving at the rejection of the above claims under section 103, based on improper hindsight, which fails to consider the totality of applicant’s invention and to the totality of the cited references. More specifically, the Examiner has used Applicant’s disclosure to select portions of the cited references to allegedly arrive at Applicant’s invention. In doing so, the Examiner has failed to consider the teachings of the references or Applicant’s invention as a whole in contravention of section 103, including the disclosures of the references which teach away from Applicant’s invention.

The Examiner combines Imrie with Lipsztajn to allegedly teach the feature of the electrochemical acidification cell. Both Imrie and Lipsztajn are directed to apparatuses that produce chlorine dioxide. Since both apparatuses already are configured to produce chlorine dioxide, one of ordinary skill in the art would not be motivated to combine the two apparatuses especially given that Imrie's apparatus teaches away from the handling of two or more solutions and Lipsztajn's apparatus touts substantially improved conversion efficiencies of greater than 90%. Moreover, the effluent produced by the configuration of Lipsztajn is substantially chlorine dioxide, which means it is not substantially chlorous acid. As such, the combination of the two references would still fail to teach or suggest an apparatus that includes an electrochemical acidification cell to produce chlorous acid, which is ion fluid communication with the vessel housing the chlorine containing material, the combination of which produces chlorine dioxide. In view of the foregoing, when each reference is considered as a whole one of ordinary skill in the art would not be motivated to combine these references.

In addition to the above, it is well settled patent law that obviousness is not based upon what an artisan could do or what an artisan may try, but is based upon what an artisan would be motivated to do with an expectation of success. "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, No. 04-1616 (CAFC March 22, 2006) citing *In re Lee*, 277 F.3d 1338, 1343-46 (Fed. Cir. 2002); and *In re Rouffett*, 149 F.3d 1350, 1355-59 (Fed. Cir. 1998). "When the [Examiner] does not explain the motivation, or the suggestion or teaching, that would have led the skilled artisan at the time of the invention to the claimed combination as a whole, [it is] infer[ed] that the [Examiner] used hindsight to conclude that the invention was obvious." *Id.* Additionally, "[a]lthough the suggestion to combine references may flow from the nature of the problem, '[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.'" (internal citation omitted) *Id.*, quoting *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877,

881 (Fed. Cir. 1998); *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992). In the present situation, there is no motivation to combine these two references and any combination is tantamount to improper hindsight by improperly using Applicant's claimed features as a template. Moreover, other than mere conclusory statements, there is no articulated reason as to the rationale for combining the two references.

The Office further combines the above references with Kaczur for its suggestion of a cation exchange resins in an electrochemical cell. Like Lipsztajn, Kaczur also is directed to producing an effluent of chlorine dioxide with conversion efficiencies as high as 76% (see Example 12). Although one may be motivated to substitute cation exchange resin in Lipsztajn, there still remains no motivation to one of skill in the art to combine an electrochemical apparatus with Imire's apparatus, especially given that the electrochemical apparatuses already provide chlorine dioxide at high yields.

Buchanan fails to compensate for the deficiencies as described above.

In view of the foregoing, the rejection is requested to be withdrawn. Accordingly, it is requested that the rejection applied to Claims 27 to 37 be withdrawn.

Provisional Rejection

Claims 27-37 are provisionally rejected on the ground of non-statutory obviousness type double patenting as being unpatentable over Claim 23-26 and 28-47 of copending Application No. 10/683,056 in view of Buchan.

Since neither the present claims nor the claims of any of the copending Applications (10/683,056), have been patented, there is no way that double patenting can be determined (nothing is patented and there is no way to compare the final claims until one of the cases has been patented and the other claims are otherwise allowable). Hence, the Applicants respectfully request that the Examiner withdraw these obviousness double patenting rejections until the claims are in final form and otherwise in condition for allowance, and the

case over which double patenting is alleged is allowed. Until such time, there is no double patenting and no way to determine double patenting.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,
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